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Assessing the impact of advertising on wine preference using Choice Experiments

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1. INTRODUCTION

- ***Information and advertising have an impact on consumers' preferences.***
- ***Ultimately, it could affect the decision to acquire products.***
- ***Information perception is heterogeneous across individuals.***
  - ***Should be treated adequately.***
  - ***Avoid biased estimates of attributes' products.***
  - ***Correct welfare measurement across consumers.***

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2. OBJETIVE

- **To assess the impact of advertising on preferences.**

- **To analyze the effect during Christmas of an advertising campaign specifically addressed to promote the consumption of Catalan wine in Catalonia –Spain.**

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3. METHODOLOGY:
The Choice Experiment

- Characterization of a food product by a combination of attributes (monetary attribute).
- Combination of attributes levels to create hypothetical scenarios to be valued.
- Outside option is not included since the interest is the comparison between levels and attributes .
- Respondent are asked to chose between scenarios in each Choice Set.

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3. METHODOLOGY:
The Choice Experiment

Utility of the hypothetical scenarios

$$U_{in} = V_{in}\,(Z_i \,.\, S_n) + \varepsilon_{in}$$

- U_{in}: utility of alternative *i*. V_{in} is the systematic component. Z_i attributes.
- S_n socio-economic characteristics. ε_{in}: random term.

- Probability that an individual n choose the alternative i (P_{in}):
- Conditional Logit Model (McFadden . 1974):

$$P_{in} = \frac{e^{\mu V_{in}}}{\sum_{j=1}^{J} e^{\mu V_{jn}}}$$

3.2. THE CHOICE EXPERIMENTS

$X_{ki} \times P$ = combined effect of attribute k in alternative i (X_{ki}) by dummy variable representing the advertisement effect,

α_{kp} = coefficient of interaction between the attribute k and dummy variable P.

Attributes	$V_{jn} = \sum_k \beta_k X_{kj}$
Attributes + Interaction of dummy variable (publicity) with attributes	$V_{jn} = \sum_k \beta_k X_{kj} + \sum_k \sum_p \alpha_{kp} (X_{kj} \times P)$

IMPLICIT PRICE OF ATTRIBUTE

$$IP_{non-market\ \_\ attribute} = -\left(\frac{\beta_{non-market\ \_\ attribute}}{\beta_{monetary\ \_\ attribute}} \right)$$

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4. CASE STUDY

Questionnaire

- Two questionnaires have been applied.
- *Pre* spot samples formed by 300 consumers.
- *Post* spot samples formed by 400 consumers.
- Face-to-face interview

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5. EMPIRICAL APPLICATION:
Attributes and levels

Variable	Description
	Origin
ORIG0	Base level= FOREIGN
ORIG1	1= SPAIN; -1= base level; 0= otherwise
ORIG2	1= CATALONIA, -1= base level; 0=otherwise
	Knowledge
KNOW0	Base level= PERSONAL EXPERIENCE
KNOW1	1= RECOMMENDED; -1= base level; 0= otherwise
KNOW2	1= WELL RECOGNIZED AND PRESTIGE, -1= base level; 0=otherwise
	Variety of grape
VART0	Base level= MERLOT
VART1	1= GARNATXA NEGRE; -1= base level; 0= otherwise
VART2	1= CABERNET SAUVIGNON, -1= base level; 0=otherwise
	Price
PRICE	PRICE of alternatives wine with three level: 6 €, 10€ and 14 €
	Publicity
PUB	1= POST SPOT sample, 0= PRE SPOT sample

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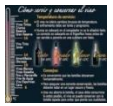
5. EMPIRICAL APPLICATION:
Experimental Design

- From a full factorial design ($3^4 \times 3^4$).
- Following a main effect Orthogonal fractional factorial design: 9 choice set.

ELECTION # 1	Alternative "A"	Alternative "B"
Origin (A_1) 	Catalonia	Spain
Knowledge (A_2) 	Personal experience	Recommended
Variety (A_3) 	Merlot	Cabernet Sauvignon
Price (A_4) 	6 €	10 €
Supposing these options are the only ones available, which would you buy?		

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- Interaction effect between attributes and Publicity dummy variable.

Table 2. Results Hybrid CL model

Variables	*Coefficients*	*Standard error*	*p-value*
ORIG1	0.1330	0.0369	0.0003
ORIG2	0.3724	0.0411	0.0000
KNOW1	0.1040	0.0436	0.0172
KNOW2	-0.0856	0.0347	0.0136
VART1	-0.1823	0.0365	0.0599
VART2			
P			
O			
O			
K			
KNOW2× PUB	0.0016	0.0459	0.9718
VART1× PUB	-0.0095	0.0486	0.8447
VART2× PUB	-0.0193	0.0565	0.7332
Log-Likelihood ratio		640.57 (0.0000)	
ρ^2 (pseudo R^2)		0.08	

- Overall, the model is highly significant and shows a good fit when comparing the log likelihood at zero and at convergence

- All parameters corresponding to attribute levels are statistically significant; hence all attributes considered seems to be relevant to characterize consumers' preferences.

- Almost all implicit prices are statistically different from zero.
- The spot have shown a null impact on attributes ranking between the two samples. However, there are some differences in the intensity of the IP.

Pre-publicity			*Post-publicity*		
Attributes	*PI*	95% C.I.	*Attributes*	*PI*	95% C.I.
Foreign	-5.157	(-6.559 ; -4.084)	Foreign	-3.737	(-5.355 ; -2.416)
Spain	1.266	(0.632 ; 1.964)	Spain	0.334	(-0.504 ; 1.177)
Catalonia	3.890	(3.114 ; 4.948)	Catalonia	3.404	(2.491 ; 4.703)
Personal experience	-4.007	(-5.337 ; -2.799)	Personal experience	-2.697	(-4.251 ; -1.370)
Recommended	3.129	(2.170 ; 4.304)	Recommended	1.968	(0.874 ; 3.164)
well recognized and prestige	0.878	(0.196 ; 1.593)	well recognized and prestige	0.729	(-0.117 ; 1.582)
Merlot	-3.403	(-4.969 ; -2.147)	Merlot	-2.509	(-4.091 ; -1.108)
Garnatxa negre	-1.922	(-2.652 ; -1.329)	Garnatxa negre	-1.603	(-2.566 ; -0.789)
Cabernet Sauvignon	5.326	(4.045 ; 6.944)	Cabernet Sauvignon	4.112	(2.793 ; 5.777)

- The willingness to pay to move from "Spanish" origin to "Catalonian" increases after the campaign.

Foreign→ Catalonia	0.8467	0.8132	9.0468	8.6688
Foreign→ Spain	0.6011	0.4637	6.4227	4.9337
Spain→ Catalonia	0.2456	0.3496	2.6241	3.7149
Personal experience → Prestige	0.4572	0.3902	4.8845	4.1489
Personal experience → Recommended	0.6679	0.5313	7.1361	5.6565
Recommended →				
Me				
Sau				
Me				
Ga				
Cab				

- The willingness to pay for the information attribute after the spot is lower than before. This result suggest that the advertising campaign has had some impact in the sense that it has decreased the relative importance of the other information sources (personal experiences, prestige, recommendation).

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6. CONCLUSIONS

- The spot have not any effect on attributes' ranking.
- Some differences in the intensity of the IP are found.

- It is possible to obtain the Compensating Surplus for a wide range of attributes combination allowing to obtain utility of the whole product:

$$CS = \frac{\ln \sum_k e^{V_{k1}} - \ln \sum_k e^{V_{k0}}}{\beta_m} = -\frac{V_0 - V_1}{\beta_m}$$

- The use of choice experiments has revealed its ability to assess the impact of advertising on consumers' preferences.